TECTONOPHYSICS—Volume 214—No. 1–4

Special Issue

THE PALAEOZOIC EASTERN MARGIN OF GONDWANALAND: TECTONICS OF THE LACHLAN FOLD BELT, SOUTHEASTERN AUSTRALIA AND RELATED OROGENS

Selected papers from a conference held under the auspices of the Geological Society of Australia by the Specialist Group in Tectonics and Structural Geology at the Australian Academy of Sciences, Canberra, Australia, from 4 to 6 February 1991.

Edited by

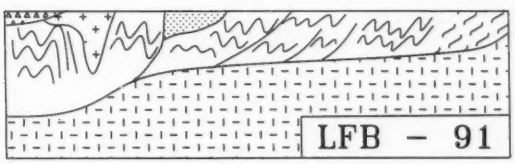
C.L. FERGUSSON

Department of Geology, University of Wollongong, Wollongong, NSW 2500, Australia

and

R.A. GLEN

Geological Survey of New South Wales, Department of Mineral Resources, Minerals House, St. Leonards, NSW 2065, Australia



CONTENTS

Preface vii
List of Authors viii

Setting of the Lachlan Fold Belt
The Lachlan Belt of eastern Australia and Circum-Pacific tectonic evolution
P.J. Coney (Tucson, Ariz., USA) 1

Delamerian Fold Belt
Observations on the tectonic evolution of the southern Adelaide Fold Belt
R.J.F. Jenkins and M. Sandiford (Adelaide, S.A., Australia) 27
Tectonic implications of Late Proterozoic–Early Palaeozoic igneous rock associations in western Tasmania
A.J. Crawford and R.F. Berry (Hobart, Tas., Australia) 37
Geological evolution of the Wonominta Block
K.J. Mills (Sydney, N.S.W., Australia) 57

Glenelg River Complex: western margin of the Lachlan Fold Belt or extension of the Delamerian Orogen into western Victoria?
G.M. Gibson (Toowoomba, Qld., Australia) and D.N. Nihill (Melbourne, Vic., Australia) 69
Geologic framework and tectonic evolution is western Victoria, Australia
C.J.L. Wilson, R.A. Cayley and S. Chen (Parkville, Vic., Australia) 93

Lachlan Fold Belt in New Zealand
Early Palaeozoic terranes in New Zealand and their relationship to the Lachlan Fold Belt
R.A. Cooper and A.J. Tulloch (Lower Hutt, New Zealand) 129
Medium–high-pressure metamorphic rocks of the Tuhua Orogen, western New Zealand as lower crustal analogues of the Lachlan Fold Belt, southeastern Australia
G.M. Gibson (Toowoomba, Qld., Australia) 145

Ordovician of the Lachlan Fold Belt
Ordovician terranes of the southeasten Lachlan Fold Belt: stratigraphy, structure and palaeogeographic reconstruction
A.H.M. VandenBerg (Melbourne, Vic., Australia) and I.R. Stewart (Clayton, Vic., Australia) 159
The tectonic significance of Ordovician magmatism in the eastern Lachlan Fold Belt
D. Wyborn (Canberra, ACT, Australia) 177

Silurian–Devonian Basins of the Lachlan Fold Belt
Tectonic affinity of the Mathinna Group in the Lachlan Fold Belt
C.McA. Powell (Perth, W.A., Australia) and P.W. Baillie (Rosny Park, Tas., Australia) 193
The stratigraphy and deformation history of the Tumut region: implications for the development of the Lachlan Fold Belt
P.G. Stuart-Smith, R.I. Hill, M.J. Rickard and M.A. Etheridge (Canberra, ACT, Australia) 211
A geophysical transect across the Tumut Synclinorial Zone, NSW
J. Leven, P. Stuart-Smith, R. Musgrave, M. Rickard and K.A.W. Crook (Canberra, ACT, Australia) 239
Isotopic dating of basin inversion – the Palaeozoic Cobar Basin, Lachlan Orogen, Australia
R.A. Glen (St. Leonards, N.S.W., Australia), R.D. Dallmeyer (Athens, Ga., USA) and L.P. Black (Canberra, ACT, Australia) 249
Experimental kinematic analysis of en echelon structures in relation to the Cobar Basin, Lachlan Fold Belt
J.V. Smith (Broadway, N.S.W., Australia) 269
The Middle to Late Devonian Eden–Comerong–Yalwal Volcanic Zone of southeastern Australia: an ancient analogue of the Yellowstone–Snake River Plain region of the USA
K.A. Dadd (Broadway, NSW, Australia) 277

Deformation of granites and metamorphics of the Lachlan Fold Belt
Low-pressure deformation of a small high-level pluton: the syn-tectonic Davys Creek Granite from the northeastern Lachlan Fold Belt, NSW
T. Fowler (Bendigo, Vic., Australia) and P. Lennox (Kensington, N.S.W., Australia) 293
Sequential porphyroblast growth during progressive deformation and low-P–high-T (LPHT) metamorphism, Cooma Complex, Australia: the use of microstructure analyses to better understand deformation and metamorphic histories
S. Johnson (Townsville, Qld., Australia) 311

Synthesis
Thrust, extensional and strike-slip tectonics in an evolving Palaeozoic orogen – a structural synthesis of the Lachlan Orogen of southeastern Australia
R.A. Glen (St. Leonards, N.S.W., Australia) 341
Palaeozoic arc growth, deformation and migration across the Lachlan Fold Belt, southeastern Australia
W.J. Collins (Newcastle, N.S.W., Australia) and R.H. Vernon (North Ryde, N.S.W., Australia) 381
Influence of detachment-related passive margin geometry on subsequent active margin dynamics: applied to the Tasman Fold Belt System
E. Scheibner (St. Leonards, N.S.W., Australia) 401
Convergence and intraplate deformation in the Lachlan Fold Belt of southeastern Australia
C.L. Fergusson (Wollongong, N.S.W., Australia) and P.J. Coney (Tucson, Ariz., USA) 417
Thermal regimes, anatexis, and orogenesis: relations in the western Lachlan Fold Belt, southeastern Australia
D.R. Gray and J.P. Cull (Clayton, Vic., Australia) 441